



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

November 30, 2016

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 – NRC BASELINE
EMERGENCY PREPAREDNESS BIENNIAL EXERCISE INSPECTION REPORT
05000254/2016502 AND 05000265/2016502

Dear Mr. Hanson:

On November 17, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Quad Cities Nuclear Power Station, Units 1 and 2, and the NRC Inspectors discussed the results of this inspection with Mr. S. Darin and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Steven K. Orth, Chief
Plant Support Branch
Division of Reactor Safety

Docket Nos. 50-254; 50-265
License Nos. DPR-29; DPR-30

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-254; 50-265
License No: DPR-29; DPR-30

Report No: 05000254/2016502; 05000265/2016502

Licensee: Exelon Generation Company, LLC

Facility: Quad Cities Nuclear Power Station, Units 1 and 2

Location: Cordova, IL

Dates: November 14 – 17, 2016

Inspectors: Gregory Hansen, Sr. Emergency Preparedness Inspector
Michelle Garza, Emergency Preparedness Inspector
Jacquelin Wojewoda, Reactor Engineer
Jure Kutlesa, Physical Security Inspector

Approved by: Steven K. Orth, Chief
Plant Support Branch
Division of Reactor Safety

Enclosure

SUMMARY

Inspection Report 05000254/2016502, 05000265/2016502; November 14 - 17, 2016; Quad Cities Nuclear Power Station, Units 1 and 2; Baseline Emergency Preparedness Exercise Evaluation; Exercise Evaluation Scenario Review; Performance Indicator Verification.

This report covers a 1-week period of announced baseline inspection by four Region III inspectors. The U.S. Nuclear Regulatory Commission's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG 1649, "Reactor Oversight Process," dated July 2016.

NRC-Identified and Self-Revealed Findings

Cornerstone: Emergency Preparedness

No findings were identified.

Licensee-Identified Violations

None

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

.1 Exercise Evaluation

a. Inspection Scope

The inspectors reviewed the November 16, 2016, Biennial Emergency Preparedness Exercise's objectives and scenario to ensure that the exercise would acceptably test major elements of the licensee's Emergency Plan and to verify that the exercise's simulated problems provided an acceptable framework to support demonstration of the licensee's capability to implement its plan. The inspectors also reviewed records of other drills and exercises conducted from 2014 through 2016, to verify that those drills' scenarios were sufficiently different from the scenario used in the November 16, 2016, exercise.

The inspectors evaluated the licensee's exercise performance, focusing on the risk-significant activities of emergency classification, notification, and protective action decision making, implementation of accident mitigation strategies, and correction of past exercise weaknesses in the following emergency response facilities:

- Control Room Simulator;
- Technical Support Center;
- Operations Support Center; and
- Emergency Operations Facility.

The inspectors also assessed the licensee's recognition of abnormal plant conditions, transfer of responsibilities between facilities, internal communications, interfaces with offsite officials, readiness of emergency facilities and related equipment, and overall implementation of the licensee's Emergency Plan.

The inspectors attended post-exercise critiques in the control room simulator, technical support center, operations support center, and emergency operations facility to evaluate the licensee's initial self-assessment of its exercise performance. The inspectors later met with the licensee's lead exercise evaluators and managers to obtain the licensee's findings and assessments of its exercise participants' performances. These self-assessments were then compared with the inspectors' independent observations and assessments to assess the licensee's ability to adequately critique its exercise performance. Documents reviewed are listed in the Attachment to this report.

This exercise evaluation inspection constituted one sample as defined in Inspection Procedure (IP) 71114.01-06.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

Prior to the inspection activity on-site, the inspectors conducted an in-office review of the exercise objectives and scenarios submitted to the U.S. Nuclear Regulatory Commission using IP 71114.08, "Exercise Evaluation - Scenario Review," to determine if the exercise would test major elements of the Emergency Plan as required by Title 10 of the *Code of Federal Regulations*, Part 50.47(b)(14). Documents reviewed are listed in the Attachment to this report.

This review of the exercise objectives and scenario constituted one inspection sample as defined in IP 71114.08-06.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

Cornerstone: Emergency Preparedness

4OA1 Performance Indicator Verification (71151)

.1 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill/Exercise Performance Indicator (PI) for the period from the third quarter 2015 through third quarter 2016. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI; assessments of PI opportunities during pre-designated control room simulator training sessions, and performance during other drills. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Drill/Exercise Performance sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation PI for the period from the third quarter 2015 through third quarter 2016. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI; performance during the 2015 and 2016 exercises and drills; and revisions of the roster of personnel assigned to key emergency response organization positions. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Emergency Response Organization Drill Participation sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Alert and Notification System

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System (ANS) PI for the period from the third quarter 2015 through third quarter 2016. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI and results of periodic scheduled ANS operability tests. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one ANS sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 17, 2016, the inspectors presented the biennial exercise inspection results to Mr. Darin, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Darin, Site Vice President
G. Buckley, Emergency Preparedness Manager
A. Daniels, Midwest Emergency Preparedness Manager
R. Martin, Emergency Preparedness Drill and Exercise Coordinator
J. Woodridge, Chemistry Manager
D. Collins, Radiation Protection Manager
C. Gans, Radiation Protection Technical Specifications
J. Brigs, Senior Manager of Operations Support and Services
R. High, Maintenance Director
A. Scott, Work Management Director
S. Grant, Emergency Preparedness Coordinator
R. Lvebbe, Regulatory Assurance
W. Beck, Regulatory Assurance Manager
K. Aleshire, Emergency Preparedness Director
H. Dodd, Operations Director
R. Mika, Emergency Preparedness Coordinator

U.S. Nuclear Regulatory Commission

R. Murray, Senior Resident Inspector
K. Carrington, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened, Closed and Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
IP	Inspection Procedure
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1EP1 Exercise Evaluation (71114.01)

- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 28
- EP-AA-1006; Exelon Nuclear Radiological Emergency Plan Annex for Quad Cities Stations; Revision 37
- EP-AA-1006, Addendum 3; Emergency Action Levels for Quad Cities Station; Revision 2
- EP-AA-1006 Addendum 1; Quad Cities Station On-Shift Staffing Technical Basis; Revision 1
- EP-AA-121; Emergency Response Facilities and Equipment Readiness; Revision 15
- EP-AA-122; Drills and Exercise Program; Revision 18
- Quad Cities 2014 HAB NRC Graded Exercise Evaluation Report; Dated August 27, 2014
- Quad Cities 2015 Off-Year Exercise Evaluation Report, Revision 1; April 28, 2016
- Quad Cities 2015 Off-Year Exercise Evaluation Report; June 3, 2015
- Quad Cities 2016 Pre-exercise Evaluation Report; November 3, 2016
- Quad Cities 2016 Pre Exercise Evaluation Report; October 5, 2016
- AR 01697891; QDC-EP-2014-HABEX-CAS/SAS/ICP- Failed Objective; August 28, 2014
- AR 02407858; 3Q14 EP PI Drill Follow-up Issues - TSC Facility Evaluation; October 6, 2014
- AR 02511020; QDC-EP-2015-2QPI-TSC Failed DCs; June 5, 2015
- AR 02511026; QDC-EP-2015-2QPI-SIM Failed DC; June 5, 2015
- AR 02513405; QDC-EP-2015-OYE-TSC Failed DCs; June 11, 2015
- AR 02513416; QDC-EP-2015-OYE-OSC Failed DCs; June 11, 2015
- AR 02513420; QDC-EP-2015-OYE-SIM Failed DCs; June 11, 2015
- AR 02550293; One Person Filling Two ERO Positions; August 31, 2015
- AR 02648988; 1ST QTR PI Drill Facility and Equipment Issues; April 1, 2016
- AR 02648990; 1ST QTR PI Drill TSC Issues; April 1, 2016
- AR 02682980; QDC EP 2Q16 PI Drill Management Issue; June 17, 2016
- AR 02728314; QDC-EP-2016-PREX-CR/SIM-Other Issues; October 5, 2016
- AR 02733511; QDC-EP-2016-PREX-OSC-FAILED DCs; October 27, 2016
- AR 02733522; QDC-EP-2016-PREX-TSC-FAILED DCs; October 27, 2016
- AR 02733546; QDC-EP-2016-PREX-TSC-Other Issues; October 27, 2016
- AR 02691439; EP-Siren Failure (QC35); July 11, 2016
- AR 02696497; EP-Siren Failure (QC02, QC25, QC35); July 25, 2016
- AR 02704530; EP-Siren Failure (QC26); August 15, 2016
- AR 02706208; EP-Siren Failure (QC26); August 19, 2016
- AR 02558312; EP-Siren Failure (QC05); September 21, 2015
- AR 02581456; EP-Siren Failure (QC05); November 2, 2015
- AR 02608081; EP-Siren Failure (QC03); January 5, 2016

1EP8 Exercise Evaluation – Scenario Review (71114.08)

- Quad Cities Nuclear Power Station 2016 Biennial Exercise 60-Day Submittal; September 2016

4OA1 Performance Indicator Verification

- NRC PI Data Sheets; NRC Indicator ANS Reliability; July 2015 – October 2016
- NRC PI Data Sheets; ERO Readiness; July 2015 – October 2016
- NRC PI Data Sheets; Drill/Exercise Performance; July 2015 – October 2016

November 30, 2016

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